

Chapter 11 Body

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1 General information

These models feature separate body and frame construction. The frame is ladder-type, consisting of two C-section steel side rails joined by crossmembers.

Certain components are particularly vulnerable to accident damage and can be unbolted and repaired or replaced. Among these parts are the body moldings, bumpers, the hood and trunk lids and all glass.

Only general body maintenance practices and body panel repair procedures within the scope of the do-it-yourselfer are included in this Chapter.

2 Body – maintenance

1 The condition of your vehicle's body is very important, because it is on this that the second-hand value will mainly depend. It is much more difficult to repair a neglected or damaged body than it is to repair mechanical components. The hidden areas of the body, such as the fenderwells, the frame, and the engine compartment, are equally important, although obviously do not require as frequent attention as the rest of the body.

2 Once a year, or every 12 000 miles, it is a good idea to have the underside of the body and the frame steam cleaned. All traces of dirt and oil will be removed and the underside can then be inspected carefully for rust, damaged brake lines, frayed electrical wiring, damaged cables, and other problems. The front suspension components should be greased after completion of this job.

3 At the same time, clean the engine and the engine compartment using either a steam cleaner or a water soluble degreaser.

4 The fenderwells should be given particular attention, as undercoating can peel away and stones and dirt thrown up by the tires can cause the paint to chip and flake, allowing rust to set in. If rust is found, clean down to the bare metal and apply an anti-rust paint.

5 The body should be washed once a week (or when dirty). Wet the vehicle thoroughly to soften the dirt, then wash it down with a soft sponge and plenty of clean soapy water. If the surplus dirt is not washed off very carefully, it will in time wear down the paint.

6 Spots of tar or asphalt coating thrown up from the road should be removed with a cloth soaked in solvent.

7 Once every six months, give the body and chrome trim a thorough

wax job. If a chrome cleaner is used to remove rust from any of the vehicle's plated parts, remember that the cleaner also removes part of the chrome, so use it sparingly.

3 Upholstery and carpets – maintenance

1 Every three months, remove the carpets or mats and clean the interior of the vehicle (more frequently if necessary). Vacuum the upholstery and carpets to remove loose dirt and dust.

2 If the upholstery is soiled, apply upholstery cleaner with a damp sponge and wipe it off with a clean, dry cloth.

4 Vinyl trim – maintenance

Vinyl trim should not be cleaned with detergents, caustic soaps or petroleum-based cleaners. Plain soap and water or a mild vinyl cleaner is best for stains. Test a small area for color fastness. Bubbles under the vinyl can be corrected by piercing them with a pin and then working the air out.

5 Hinges and locks – maintenance

Every 3000 miles or three months, the door, hood and tailgate hinges and locks should be lubricated with a few drops of oil. The striker plates should also be given a thin coat of grease to reduce wear and ensure free movement.

6 Body repair – minor damage

See photo sequence

Repair of minor scratches

If the scratch is very superficial and does not penetrate to the metal of the body, repair is very simple. Lightly rub the scratched area with a fine rubbing compound to remove loose paint and built-up wax. Rinse the area with clean water.

with the surrounding paint. Allow the new paint at least two weeks to harden, then blend it into the surrounding paint by rubbing with a very fine rubbing compound. Finally, apply a coat of wax to the scratch area.

If the scratch has penetrated the paint and exposed the metal of the body, causing the metal to rust, a different repair technique is required. Remove all loose rust from the bottom of the scratch with a pocket knife, then apply rust-inhibiting paint to prevent the formation of rust in the future. Using a rubber or nylon applicator, coat the scratched area with glaze-type filler. If required, the filler can be mixed with thinner to provide a very thin paste, which is ideal for filling narrow scratches. Before the glaze filler in the scratch hardens, wrap a piece of smooth cotton cloth around the tip of a finger. Dip the cloth in thinner and then quickly wipe it along the surface of the scratch. This will ensure that the surface of the filler is slightly hollow. The scratch can now be painted over as described earlier in this section.

Repair of dents

When repairing dents, the first job is to pull the dent out until the affected area is as close as possible to its original shape. There is no point in trying to restore the original shape completely as the metal in the damaged area will have stretched on impact and cannot be restored to its original contours. It is better to bring the level of the dent up to a point which is about 1/8-inch below the level of the surrounding metal. In cases where the dent is very shallow, it is not worth trying to pull it out at all.

If the back side of the dent is accessible, it can be hammered out gently from behind using a soft-faced hammer. While doing this, hold a block of wood firmly against the opposite side of the metal to absorb the hammer blows and prevent the metal from being stretched out.

If the dent is in a section of the body which has double layers, or some other factor that makes it inaccessible from behind, a different technique is required. Drill several small holes through the metal inside the damaged area, particularly in the deeper sections. Screw long, self-tapping screws into the holes just enough for them to get a good grip in the metal. Now the dent can be pulled out by pulling on the protruding heads of the screws with locking pliers.

The next stage of repair is the removal of paint from the damaged area and from an inch or so of the surrounding metal. This is easily done with a wire brush or sanding disk in a drill motor, although it can be done just as effectively by hand with sandpaper. To complete the preparation for filling, score the surface of the bare metal with a screwdriver or the tang of a file (or drill small holes in the affected area). This will provide a very good grip for the filler material. To complete the repair, see the Section on filling and painting.

Repair of rust holes or gashes

Remove all paint from the affected area and from an inch or so of the surrounding metal using a sanding disk or wire brush mounted in a drill motor. If these are not available, a few sheets of sandpaper will do the job just as effectively. With the paint removed, you will be able to determine the severity of the corrosion and decide whether to replace the whole panel, if possible, or repair the affected area. New body panels are not as expensive as most people think and it is often quicker to install a new panel than to repair large areas of rust.

Remove all trim pieces from the affected area (except those which will act as a guide to the original shape of the damaged body, i.e. headlight shells, etc.). Then, using metal snips or a hacksaw blade, remove all loose metal and any other metal that is badly affected by rust. Hammer the edges of the hole in to create a slight depression for the filler material.

Wire brush the affected area to remove the powdery rust from the surface of the metal. If the back of the rusted area is accessible, treat it with rust-inhibiting paint.

Before filling is done, block the hole in some way. This can be done with sheet metal riveted or screwed into place, or by stuffing the hole with wire mesh.

Once the hole is blocked off, the affected area can be filled and painted (see the following sub-section on filling and painting).

Filling and painting

Many types of body fillers are available, but generally speaking, body repair kits which contain filler paste and a tube of resin hardener are best

for this type of repair work. A wide, flexible plastic or nylon applicator will be necessary for imparting a smooth and contoured finish to the surface of the filler material.

Mix up a small amount of filler on a clean piece of wood or cardboard (use the hardener sparingly). Follow the manufacturer's instructions on the package, otherwise the filler will set incorrectly.

Using the applicator, apply the filler paste to the prepared area. Draw the applicator across the surface of the filler to achieve the desired contour and to level the filler surface. As soon as a contour that approximates the original one is achieved, stop working the paste. If you continue, the paste will begin to stick to the applicator. Continue to add thin layers of filler paste at 20-minute intervals until the level of the filler is just above the surrounding metal.

Once the filler has hardened, the excess can be removed with a body file. From then on, progressively finer grades of sandpaper should be used, starting with a 180-grit paper and finishing with 600-grit wet-or-dry paper. Always wrap the sandpaper around a flat rubber or wooden block, otherwise the surface of the filler will not be completely flat. During the sanding of the filler surface, the wet-or-dry paper should be periodically rinsed in water. This will ensure that a very smooth finish is produced in the final stage.

At this point, the repair area should be surrounded by a ring of bare metal, which in turn should be encircled by the finely feathered edge of good paint. Rinse the repair area with clean water until all of the dust produced by the sanding operation is gone.

Spray the entire area with a light coat of primer. This will reveal any imperfections in the surface of the filler. Repair the imperfections with fresh filler paste or glaze filler and once more smooth the surface with sandpaper. Repeat this spray-and-repair procedure until you are satisfied that the surface of the filler and the feathered edge of the paint are perfect. Rinse the area with clean water and allow it to dry completely.

The repair area is now ready for painting. Spray painting must be carried out in a warm, dry, windless and dust-free atmosphere. These conditions can be created if you have access to a large indoor work area, but if you are forced to work in the open, you will have to pick the day very carefully. If you are working indoors, dousing the floor in the work area with water will help settle the dust which would otherwise be in the air. If the repair area is confined to one body panel, mask off the surrounding panels. This will help minimize the effects of a slight mismatch in paint color. Trim pieces such as chrome strips, door handles, etc., will also need to be masked off or removed. Use masking tape and several thicknesses of newspaper for the masking operations.

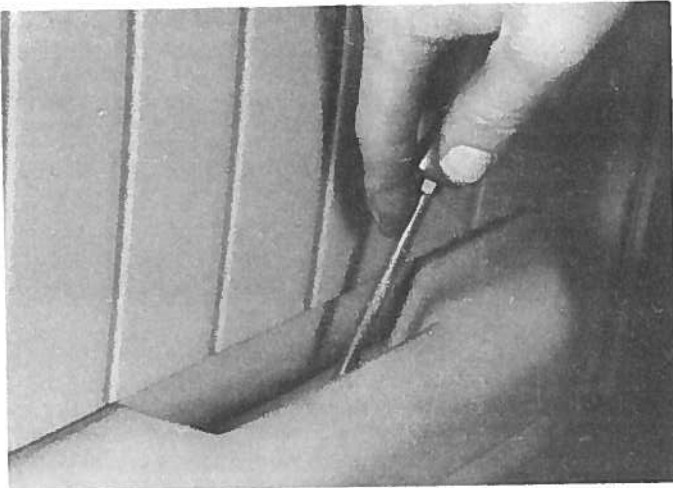
Before spraying, shake the paint can thoroughly, then spray a test area until the spray painting technique is mastered. Cover the repair area with a thick coat of primer. The thickness should be built up using several thin layers of primer rather than one thick one. Using 600-grit wet-or-dry sandpaper, rub down the surface of the primer until it is very smooth. While doing this, the work area should be thoroughly rinsed with water and the wet-or-dry sandpaper periodically rinsed as well. Allow the primer to dry before spraying additional coats.

Spray on the top coat, again building up the thickness by using several thin layers of paint. Begin spraying in the center of the repair area and then, using a circular motion, work out until the whole repair area and about two inches of the surrounding original paint is covered. Remove all masking material 10 to 15 minutes after spraying on the final coat of paint. Allow the new paint at least two weeks to harden, then use a very fine rubbing compound to blend the edges of the new paint into the existing paint. Finally, apply a coat of wax.

7 Body repair - major damage

1 Major damage must be repaired by an auto body shop specifically equipped to perform body repairs. These shops have available the specialized equipment required to do the job properly.

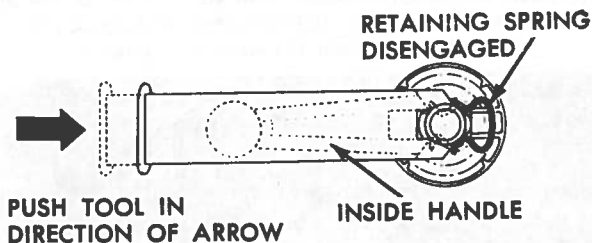
2 If the damage is extensive, the frame must be checked for proper alignment or the vehicle's handling characteristics may be adversely affected and other components may wear at an accelerated rate.



9.2 On most models, the armrest can be removed by removing the screws and sliding it to the rear



9.3a Use a small screwdriver or the inexpensive tool shown here to remove the window regulator handle retaining clip



9.3b Here's how the tool detaches the regulator handle clip

3 Due to the fact that all of the major body components (hood, fenders, etc.) are separate and replaceable units, any seriously damaged components should be replaced rather than repaired. Sometimes these components can be found in a wrecking yard that specializes in used vehicle components (often at considerable savings over the cost of new parts).

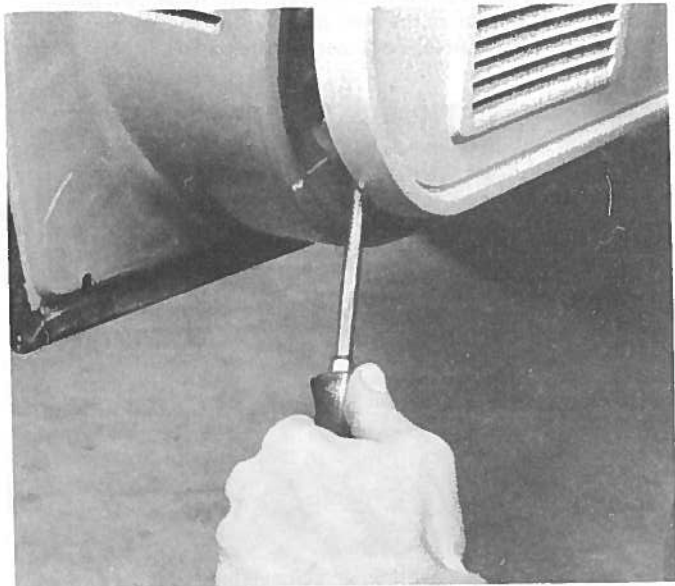
8 Windshield and fixed glass - replacement

Replacement of the windshield and fixed glass requires the use of special fast-setting adhesive/caulk materials and some specialized tools and techniques. These operations should be left to a dealer service department or a shop specializing in glass work.

9 Door trim panel - removal and installation

Refer to illustrations 9.2, 9.3a, 9.3b and 9.4

- 1 Remove the door handle trim frame.
- 2 Remove the armrest mounting screws and slide the armrest to the rear (see illustration). Remove the armrest.
- 3 Using a special tool available at your local auto parts retailer (see illustrations) or a small screwdriver, remove the window handle retaining spring clip.
- 4 Carefully remove the clips retaining the trim panel to the door, using a screwdriver (see illustration), or special tool (available at your local auto parts retailer).
- 5 Release the two latches at the top of the trim panel and detach the panel.



9.4 Detach the clips by prying the door trim panel

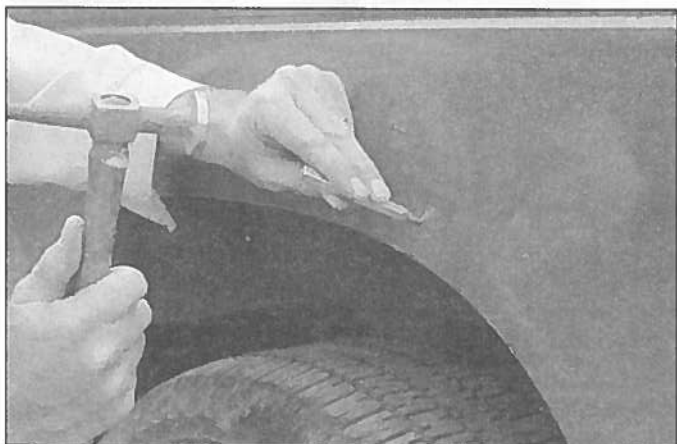
- 6 Installation is the reverse of removal. If any trim panel retaining clips were broken during removal, they can be inexpensively replaced (available at your local auto parts retailer).

10 Door exterior handle and lock cylinder - removal and installation

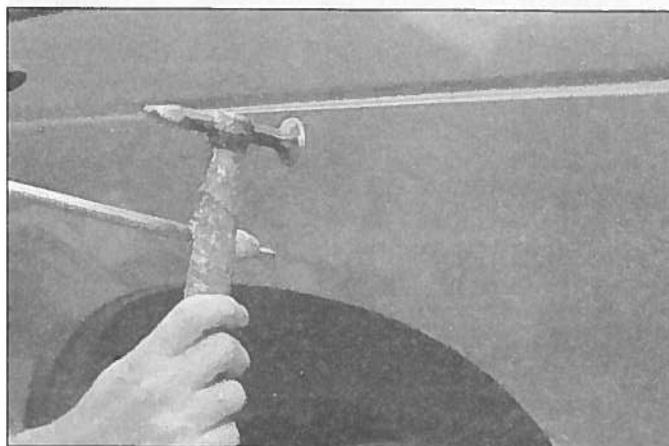
Refer to illustration 10.4

- 1 Raise the window completely.
- 2 Remove the door trim panel as described in Section 9.
- 3 Pry back the water deflector enough to gain access to the exterior handle mounting hardware.
- 4 Pry the linkage rod out of the door handle lever with a screwdriver (see illustration).
- 5 Remove the two nuts retaining the handle to the door sheet metal and detach the handle.
- 6 Installation is the reverse of removal.
- 7 To remove the lock cylinder detach the linkage rod from the lock lever and slide the retainer forward with pliers to disengage it from the lock unit. The lock can be removed from the outside (see illustration 10.4).
- 8 Installation is the reverse of removal.

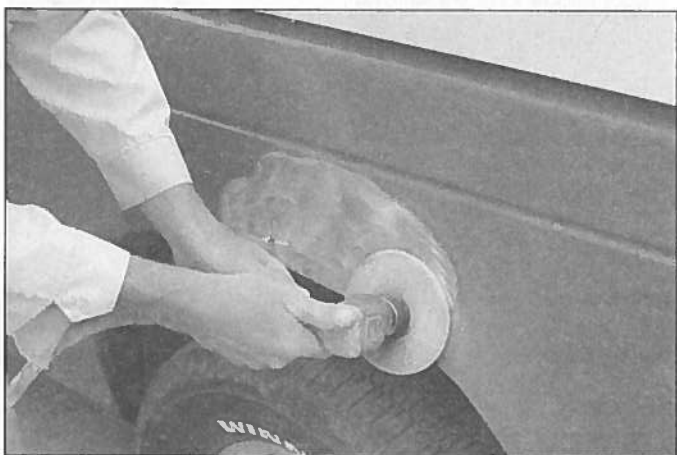
These photos illustrate a method of repairing simple dents. They are intended to supplement *Body repair - minor damage* in this Chapter and should not be used as the sole instructions for body repair on these vehicles.



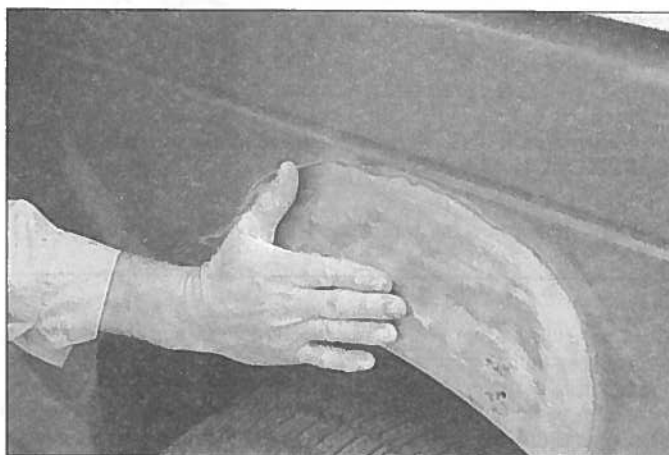
1 If you can't access the backside of the body panel to hammer out the dent, pull it out with a slide-hammer-type dent puller. In the deepest portion of the dent or along the crease line, drill or punch hole(s) at least one inch apart . . .



2 . . . then screw the slide-hammer into the hole and operate it. Tap with a hammer near the edge of the dent to help 'pop' the metal back to its original shape. When you're finished, the dent area should be close to its original contour and about 1/8-inch below the surface of the surrounding metal



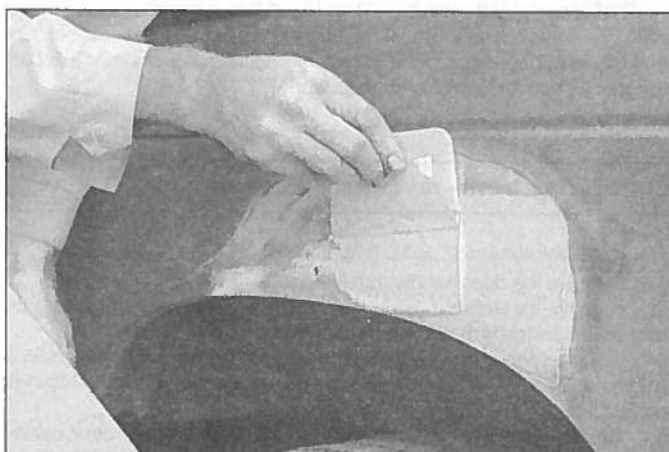
3 Using coarse-grit sandpaper, remove the paint down to the bare metal. Hand sanding works fine, but the disc sander shown here makes the job faster. Use finer (about 320-grit) sandpaper to feather-edge the paint at least one inch around the dent area



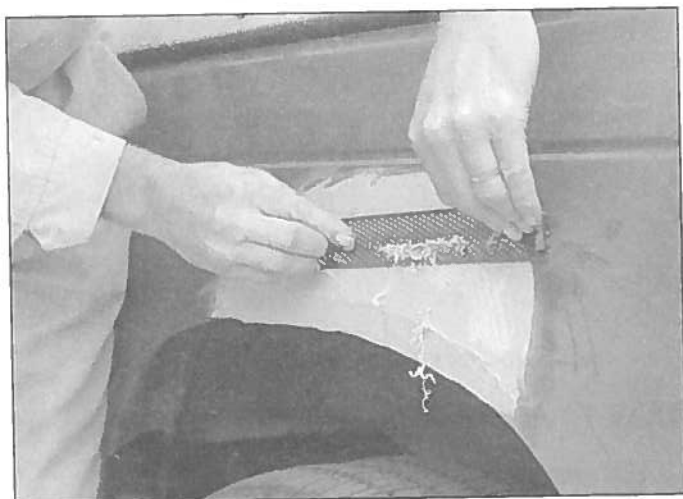
4 When the paint is removed, touch will probably be more helpful than sight for telling if the metal is straight. Hammer down the high spots or raise the low spots as necessary. Clean the repair area with wax/silicone remover



5 Following label instructions, mix up a batch of plastic filler and hardener. The ratio of filler to hardener is critical, and, if you mix it incorrectly, it will either not cure properly or cure too quickly (you won't have time to file and sand it into shape)



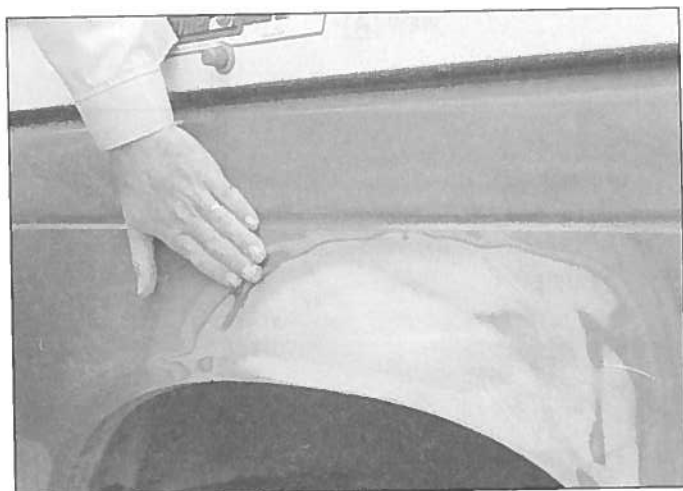
6 Working quickly so the filler doesn't harden, use a plastic applicator to press the body filler firmly into the metal, assuring it bonds completely. Work the filler until it matches the original contour and is slightly above the surrounding metal



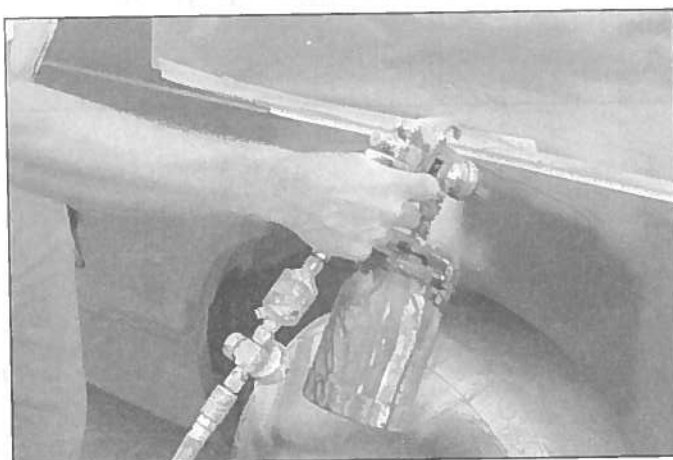
7 Let the filler harden until you can just dent it with your fingernail. Use a body file or Surform tool (shown here) to roughen the filler



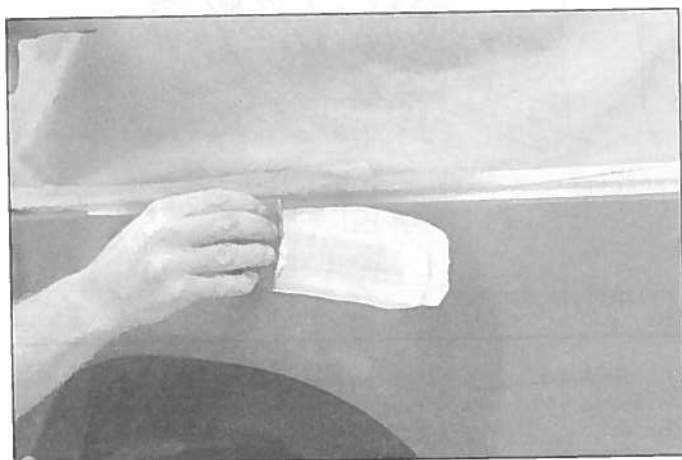
8 Use coarse-grit sandpaper and a sanding board or block to work the filler down until it's smooth and even. Work down to finer grits of sandpaper - always using a board or block - ending up with 360 or 400 grit



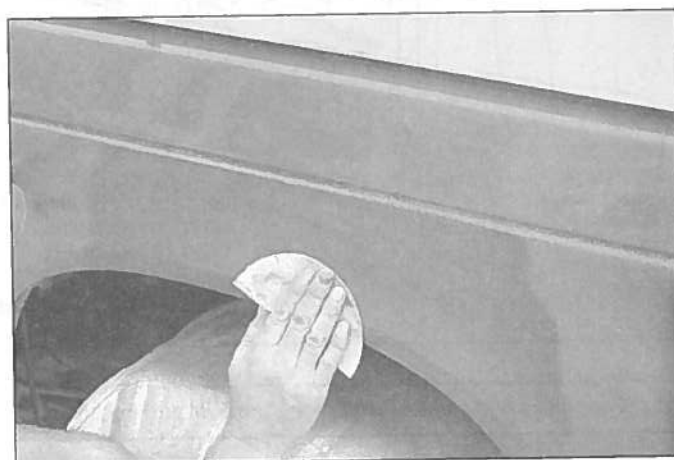
9 You shouldn't be able to feel any ridge at the transition from the filler to the bare metal or from the bare metal to the old paint. As soon as the repair is flat and uniform, remove the dust and mask off the adjacent panels or trim pieces



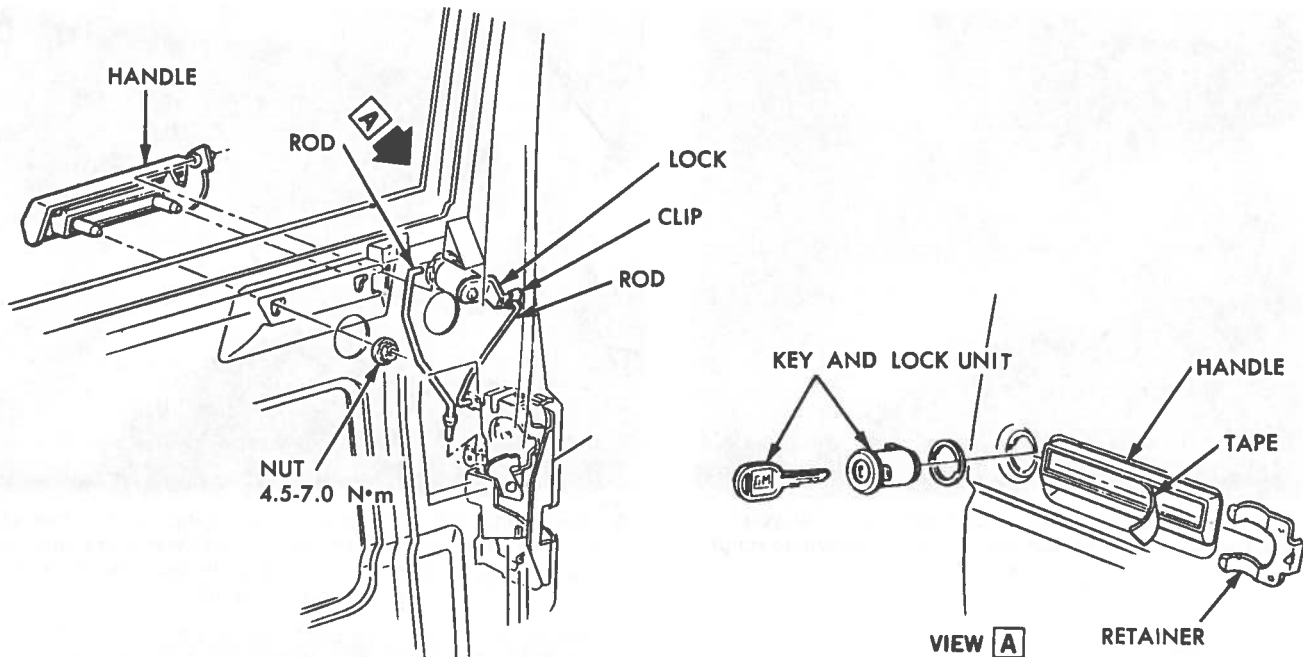
10 Apply several layers of primer to the area. Don't spray the primer on too heavy, so it sags or runs, and make sure each coat is dry before you spray on the next one. A professional-type spray gun is being used here, but aerosol spray primer is available inexpensively from auto parts stores



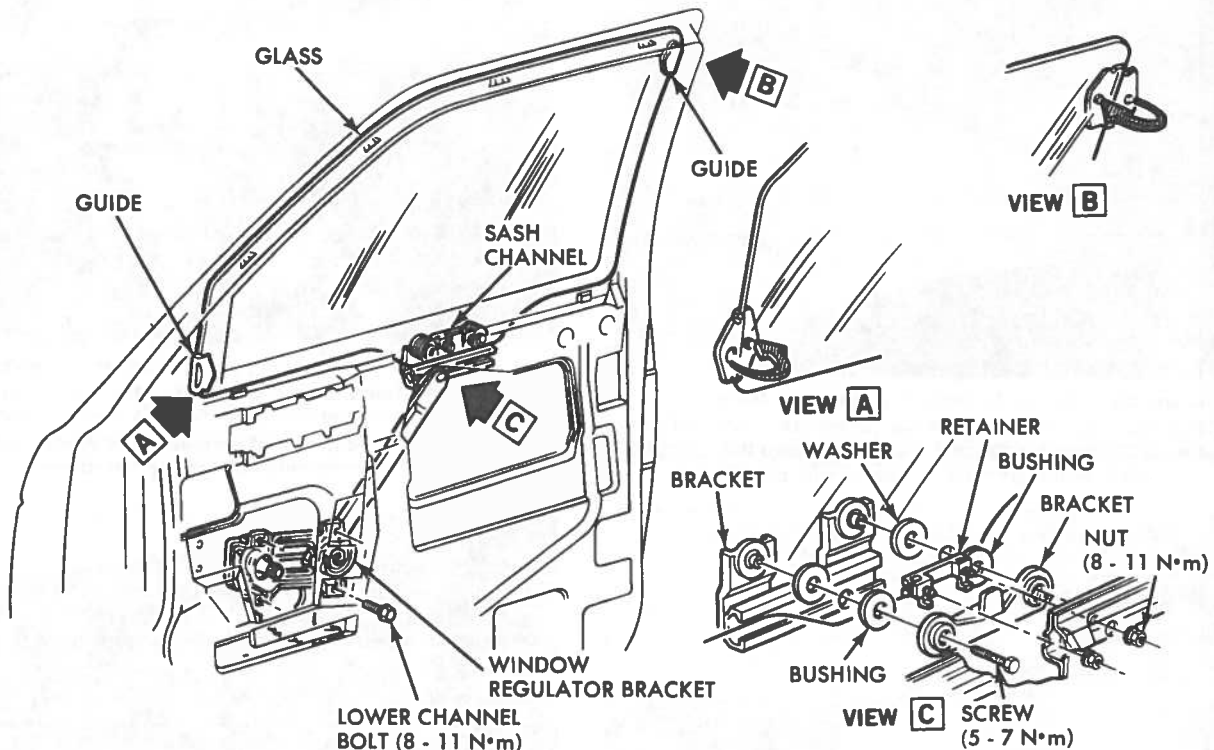
11 The primer will help reveal imperfections or scratches. Fill these with glazing compound. Follow the label instructions and sand it with 360 or 400-grit sandpaper until it's smooth. Repeat the glazing, sanding and respraying until the primer reveals a perfectly smooth surface



12 Finish sand the primer with very fine sandpaper (400 or 600-grit) to remove the primer overspray. Clean the area with water and allow it to dry. Use a tack rag to remove any dust, then apply the finish coat. Don't attempt to rub out or wax the repair area until the paint has dried completely (at least two weeks)



10.4 Door handle and lock cylinder details



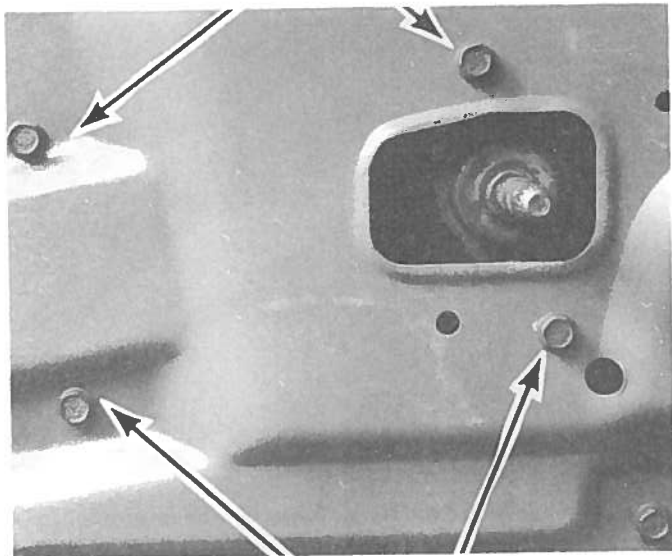
11.4 Door window glass and regulator details

11 Door glass and window regulator – removal and installation

Refer to illustrations 11.4 and 11.7

- 1 Remove the trim panel as described in Section 9.
- 2 On models equipped with power windows, disconnect the negative battery cable from the battery.

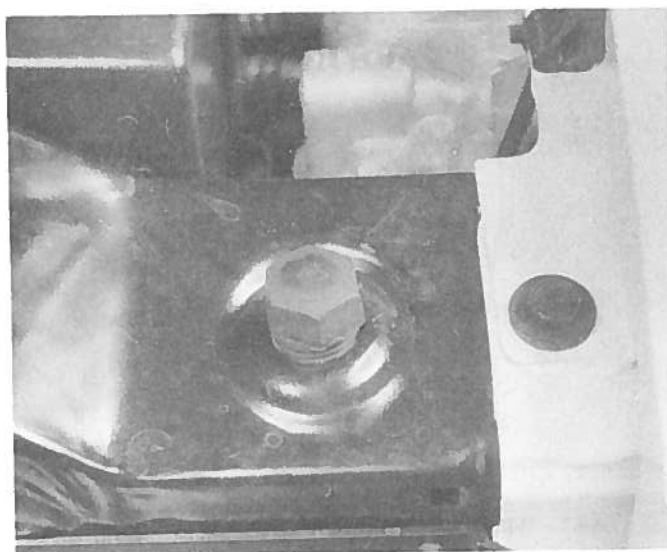
- 3 Use a putty knife to completely remove the water deflector.
- 4 Replace the window glass by first lowering the glass until the window regulator roller is visible through the door access hole (see illustration).
- 5 Remove the window glass retaining bolts and disengage the window regulator roller from the sash channel. Lower the glass into the door and rotate it up to remove it.
- 6 To replace the window regulator raise the window completely and tape both sides of the glass to the top of the door with a single piece of



11.7 Door glass regulator bolt locations (arrows)



12.2 Use a scribe or marking pen to mark the location of the hood mounting plate



12.11 The hood bumpers can be screwed in or out to adjust the front edge of the hood in relation to the fenders

cloth-backed tape.

- 7 Remove the window regulator mounting bolts (see illustration).
- 8 On power windows maneuver the regulator as necessary and disconnect the motor wiring harness.
- 9 Disengage the roller or regulator lift arm from the glass run channel.
- 10 Remove the regulator through the door panel access hole.
- 11 Installation is the reverse of removal.

12 Hood – removal, installation and adjustment

Refer to illustrations 12.2 and 12.11

Note: The hood is heavy and somewhat awkward to remove and install – at least two people should perform this procedure.

Removal and installation

- 1 Use blankets or pads to cover the cowl area of the body and the fend-

ers. This will protect the body and paint as the hood is lifted off.

- 2 Apply marks around the bolt heads to insure proper alignment during installation (see illustration).
- 3 Disconnect any cables or wire harnesses which will interfere with removal.
- 4 Have an assistant support the weight of the hood. Remove the hinge-to-hood nuts or bolts.
- 5 Lift off the hood.
- 6 Installation is the reverse of removal.

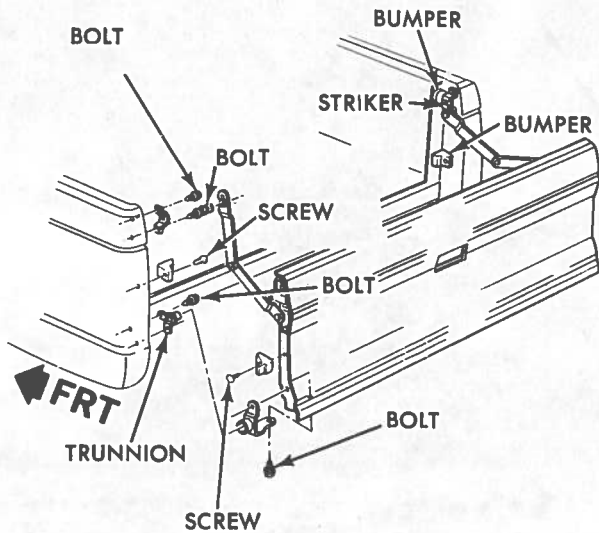
Adjustment

- 7 Fore-and-aft and side-to-side adjustment of the hood is done by moving the hood in relation to the hinge plate after loosening the bolts or nuts.
- 8 Scribe a line around the entire hinge plate so you can judge the amount of movement (see illustration 12.2).
- 9 Loosen the bolts or nuts and move the hood into correct alignment. Move it only a little at a time. Tighten the hinge bolts or nuts and carefully lower the hood to check the alignment.
- 10 If necessary after installation, the entire hood latch assembly can be adjusted up-and-down as well as from side-to-side on the radiator support so the hood closes securely and is flush with the fenders. To do this, scribe a line around the hood latch mounting bolts to provide a reference point. Then loosen the bolts and reposition the latch assembly as necessary. Following adjustment, tighten the mounting bolts securely.
- 11 Finally, adjust the hood bumpers on the radiator support so the hood, when closed, is flush with the fenders (see illustration).
- 12 The hood latch assembly, as well as the hinges, should be periodically lubricated with white lithium-base grease to prevent sticking and wear.

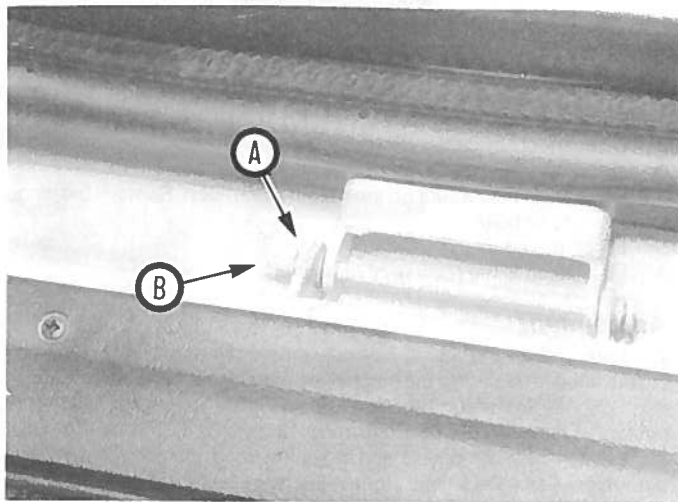
13 Tailgate – removal and installation

Refer to illustrations 13.2, 13.3 and 13.4

- 1 Support the tailgate in the open position.
- 2 Disconnect all cables and wire harness connectors that would interfere with removal of the tailgate (see illustration).
- 3 Detach the support cables. On later models, remove rod bolts and detach the torque rod (see illustration).
- 4 While an assistant supports the tailgate remove the hinge pins (see illustration).
- 5 Detach the tailgate from the vehicle.
- 6 Installation is the reverse of removal.



13.2 Tailgate details



13.4 Detach the clips (A), drive the hinge pins out (B), then remove the tailgate

14 Tailgate latch and handle – removal and installation

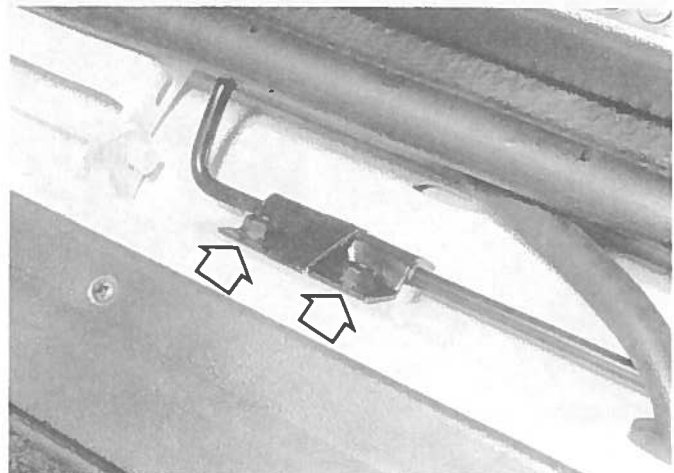
Refer to illustration 14.1

- 1 Remove the handle mounting screws from the inside (see illustration).
- 2 Detach the linkages from the retaining clips at the handle.
- 3 Remove the latch mounting bolts at each side.
- 4 Remove the latches and linkages through each side of the tailgate and liftgate.
- 5 Installation is the reverse of removal.

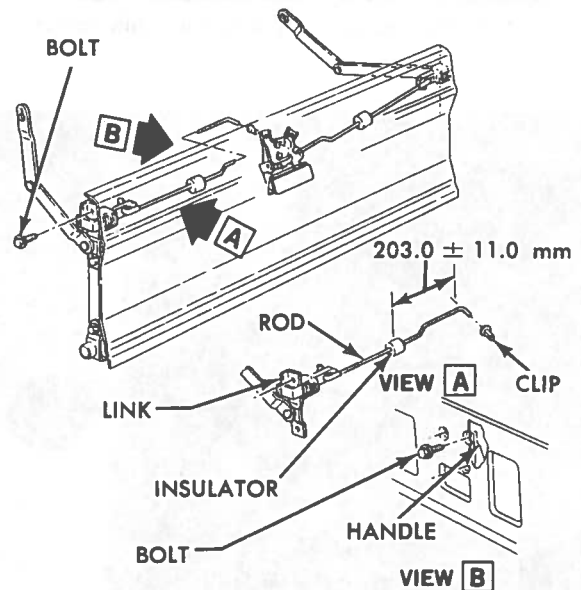
15 Liftgate – removal, installation and adjustment

Refer to illustrations 15.4, 15.5 and 15.7

- 1 Open the liftgate and cover the upper body area around the opening with pads or cloths to protect the painted surfaces when the liftgate is removed.
- 2 Disconnect all cables and wire harness connectors that would interfere with removal of the liftgate.
- 3 Paint or scribe around the hinge flanges.



13.3 The torque rod is held in place by bolts (arrows)



14.1 Typical tailgate latch details (pick-up shown)

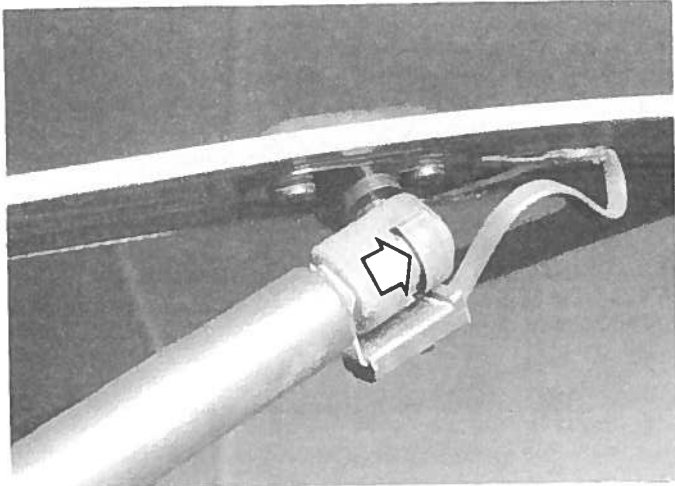
- 4 While an assistant supports the liftgate, detach the support struts (see illustration).
- 5 Remove the hinge bolts and detach the liftgate from the vehicle (see illustration).
- 6 Installation is the reverse of removal.
- 7 After installation, close the liftgate and make sure it's in proper alignment with the surrounding body panels. Adjustments are made by moving the position of the hinge bolts in the slots (see illustration). To adjust it, loosen the hinge bolts and reposition the hinges either side-to-side or fore-and-aft the desired amount and retighten the bolts.
- 8 The engagement of the liftgate can be adjusted by loosening the lock striker bolts, repositioning the striker and retightening the bolts.

16 Bumpers – removal and installation

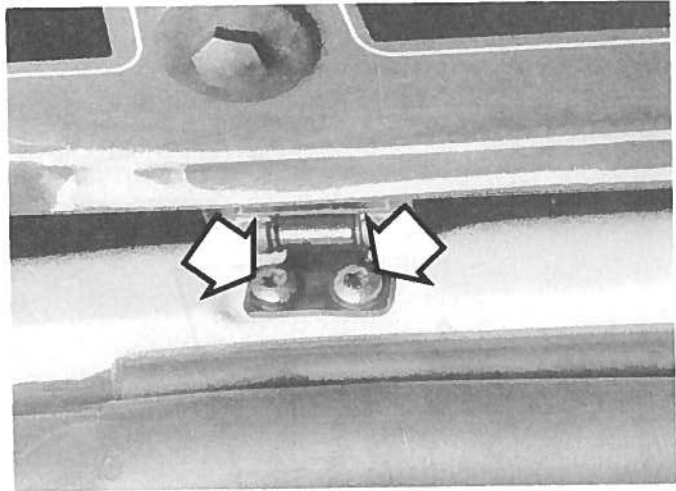
Refer to illustration 16.3

Front

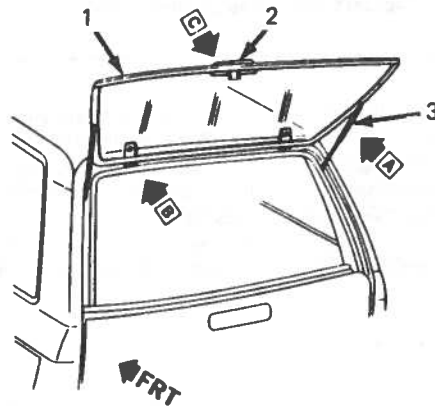
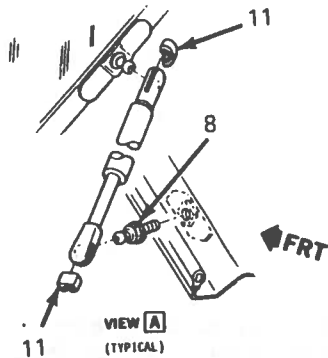
- 1 Remove the right and left side parking lights from the housings in the bumper.



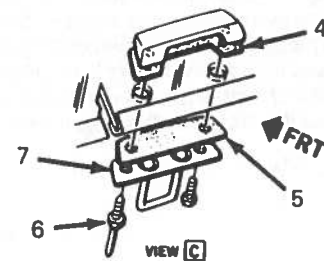
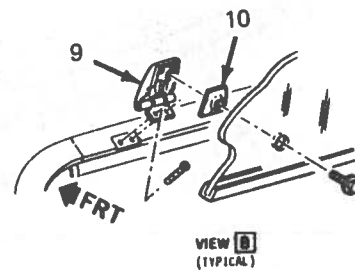
15.4 Detach the strut clips by inserting a small screwdriver or punch here (arrow)



15.5 After marking the position of the hinge, remove the bolts (arrows)



15.7 Liftgate installation details



- 2 If equipped, remove the air deflector mounting bolts at the right and left side lower fender flanges.
- 3 Remove the bumper brace-to-frame bolts and detach the bumper (see illustration).
- 4 Installation is the reverse of removal.

Rear

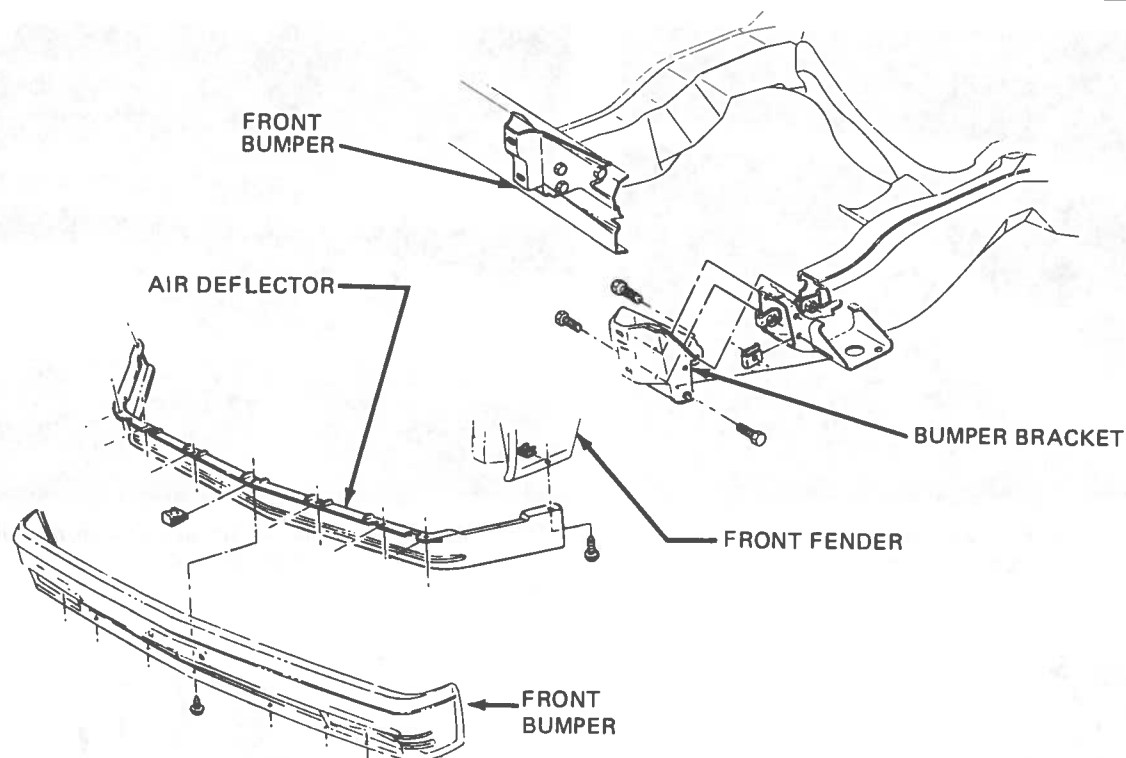
- 5 Remove the license plate light housing(s) from the bumper and disconnect the lamp lead(s).
- 6 Remove the bumper brace-to-bumper bolts and detach the bumper.
- 7 Installation is the reverse of removal.

17 Grille - removal and installation

- 1 Remove the headlight trim frames.
- 2 Remove the grille mounting screws from the front of the grille.
- 3 Remove the grille.
- 4 Installation is the reverse of removal.

18 Rear cab window - removal and installation

- 1 Using a screwdriver from the inside of the cab, pry carefully around the weatherstrip lip, forcing the weatherstripping out. Have an assistant pull on the window assembly to remove it with the weatherstripping attached.
- 2 On sliding type rear windows, using a screwdriver and pliers, remove the sliding glass stopper from the channel.
- 3 From the channel track, remove the four screws holding the two fixed frames.
- 4 With the window assembly standing vertically on its lower edge, place a folded rag near the center of the window frame to protect the channel.
- 5 Stand on the rag with one foot and gently lift the top edge of the frame and remove the sliding windows and fixed frames.
- 6 Move the rag toward either end of the channel frame and remove the two non-sliding windows in the same manner.
- 7 To install the rear window, first transfer the weatherstripping from the non-sliding window(s) being replaced to the new window(s).



16.3 Typical bumper installation details

8 Apply soapy water to the contact face of the weatherstripping surrounding the glass channel and to the glass channel flange.

9 The remaining assembly steps are the reverse of those for disassembly. It is probable that the old weatherstripping has become weather-hardened and may develop water leaks. Replace the weatherstripping with new material if any such deterioration is indicated.

10 Once the rear window is assembled, apply a working cord along the

weatherstripping groove.

11 Begin the installation in the center of the lower part of the glass.

12 Attach the window assembly to the body by pulling on the cord from the inside while an assistant pushes along the weatherstripping from the outside.

13 Seat the window assembly by tapping around the circumference of the glass with your open hand.